

CLAIMS:

1. A method comprising:
communicating a packaging record from a centralized packaging data (CPD) management system to device management software executing on a computing environment within a remote output location, wherein the packaging record defines a packaging layout identifying one or more artwork elements stored by the CPD management system;
accessing the CPD management system from the device management software operating within the computing environment of the remote location to retrieve the identified artwork elements from the CPD management system; and
configuring a manufacturing line within the remote output location to apply the retrieved artwork elements to packaging material.
2. The method of claim 1, wherein configuring a manufacturing line comprises:
processing the packaging record to extract print jobs for a plurality of input/output (I/O) devices within the remote output location;
distributing the print jobs to a set of device control modules, wherein each device control module corresponds to a respective one of the I/O devices; and
configuring the I/O devices with the device control modules in accordance with the print jobs.
3. The method of claim 2,
wherein the print jobs identify the respective artwork elements to be applied by each of the I/O devices, and
wherein the device control modules access the CPD management system to retrieve the respective artwork elements from the CPD management system, and
communicate the retrieved artwork elements to the respective I/O device for application to the packaging material.
4. The method of claim 1, wherein the print jobs include software handles that uniquely identify the respective artwork elements.

5. The method of claim 1, wherein the packaging material comprises a container, the method further comprising:
 - monitoring the number of containers processed by each of the I/O devices; and
 - generating verification information based on the number of containers processed by each of the I/O devices.
6. The method of claim 5, wherein generating verification information comprises generating an error message when the number of containers processed by one of the I/O devices does not equal the number of containers processed by another one of the I/O devices.
7. The method of claim 5, further comprising uploading the verification information to the CPD management system.
8. The method of claim 7, further comprising generating reports based on the uploaded verification information.
9. The method of claim 5, wherein the verification information includes the number of containers processed by each of the I/O devices.
10. The method of claim 5, wherein the verification information comprises a unique identifier associated with the packaging record received from the CPD management system.
11. The method of claim 1, further comprising:
 - generating an interface that presents a set of graphical icons, wherein each icon corresponds to a respective one of the I/O devices; and
 - updating the graphical icons to present status information for the respective one of the I/O devices.

12. The method of claim 11, wherein generating an interface comprises dynamically generating the interface based on the number of I/O devices.
13. The method of claim 11, further comprising:
receiving input selecting one of the icons; and
present error log information for the one of the I/O devices that corresponds to the selected icon.
14. A system comprising:
a centralized packaging data (CPD) management system that stores artwork elements in the form of packaging data, wherein the CPD management system presents an interface by which a user selects a packaging record that defines a packaging layout identifying one or more artwork elements; and
device management software executing on a computing environment within a remote output location, wherein the device management software receives the packaging record from the CPD management system, and configures a manufacturing line within the remote output location to apply the identified artwork elements to packaging material.
15. The system of claim 14, wherein the device management software retrieves the specified artwork elements from the CPD management system.
16. The system of claim 14, wherein the device management software comprises:
a master control module that receives and processes the packaging record extract print jobs for a plurality of input/output (I/O) devices within the remote output location; and
a set of device control modules that corresponds to the I/O devices, wherein the master control modules distributing the print jobs to the device control modules, and the device control modules configure the I/O devices in accordance with the print jobs.
17. The system of claim 16, wherein the print jobs identify the respective artwork elements to be applied by each of the I/O devices, and the device control modules access the CPD management system to retrieve the respective artwork elements from the CPD

management system, and communicate the retrieved artwork elements to the respective I/O device for application to the packaging material.

18. The system of claim 16, wherein the master control module monitors the number of containers processed by each of the I/O devices, and generates verification information based on the number of containers processed by each of the I/O devices.

19. The system of claim 18, wherein the master control module generates the verification information to include an error message when the number of containers processed by one of the I/O devices does not equal the number of containers processed by another one of the I/O devices.

20. The system of claim 18, wherein the master control module uploads the verification information to the CPD management system.

21. The system of claim 20, wherein the CPD management system generates reports based on the uploaded verification information.

22. The system of claim 18, wherein the master control module generates the verification information to include the number of containers processed by each of the I/O devices.

23. The system of claim 18, wherein the master control module generates the verification information to include a unique identifier associated with the packaging record received from the CPD management system.

24. The system of claim 14, further comprising a display manager to generate an interface that presents a set of graphical icons, wherein each icon corresponds to a respective one of the I/O devices and presents status information for the respective one of the I/O devices.

25. The system of claim 24, wherein the display manager dynamically generates the interface based on the number of I/O devices.
26. The system of claim 24, wherein in response to input selecting one of the icons, the display manager presents error log information for the one of the I/O devices that corresponds to the selected icon.
27. The system of claim 14, wherein the remote output location comprises one of a manufacturing facility and a print center.
28. A system comprising:
a manufacturing line having plurality of input/output devices to apply packaging data to packaging material;
a plurality of device control modules that corresponds to the I/O devices, wherein the device control modules configure the I/O devices in accordance with print jobs; and
a master control module that receives from a server a packaging record that specifies the print jobs, wherein each print job references packaging data stored on the server, wherein the master control module parses the packaging record and distributes the print jobs to the device control modules.
29. The system of claim 28, wherein each device control module retrieves the referenced packaging data from the CPD management system, and configures the respective I/O device to apply the packaging data to the packaging material.
30. The system of claim 28, wherein the master control module monitors the number of containers processed by each of the I/O devices, and generates verification information based on the number of containers processed by each of the I/O devices.
31. The system of claim 28, wherein each of the device control modules provides a common interface having identical interface functions for communicating with master control module.

32. The system of claim 28, wherein the device control modules conform to a modular software architecture that allows individual device control modules to be individually removed or added.

33. A system comprising:
means for centrally storing packaging data;
means for generating packaging records based on the packaging data;
means for communicating the packaging records to remote output locations;
means for processing the packaging records at the remote locations to extract print jobs for execution by I/O devices;
means for retrieving the packaging data from the storing means based on the print jobs; and
means for configuring the I/O devices to apply the retrieved packaging data.

34. The system of claim 33, further comprising means for verifying application of the packaging data to containers by each of the I/O devices.

35. A computer-readable medium comprising instructions to cause a processor to:
receive a packaging record from a centralized packaging data (CPD) management system, wherein the packaging record defines a packaging layout identifying one or more artwork elements stored by the CPD management system;
access the CPD management system to retrieve the identified artwork elements from the CPD management system; and
configure a manufacturing line within the remote output location to apply the retrieved artwork elements to packaging material.

36. The computer-readable medium of claim 35, further comprising instructions to cause the processor to:

process the packaging record to extract print jobs for a plurality of input/output (I/O) devices within the remote output location;

distribute the print jobs to a set of device control modules, wherein each device control module corresponds to a respective one of the I/O devices; and

configure the I/O devices with the device control modules in accordance with the print jobs.